

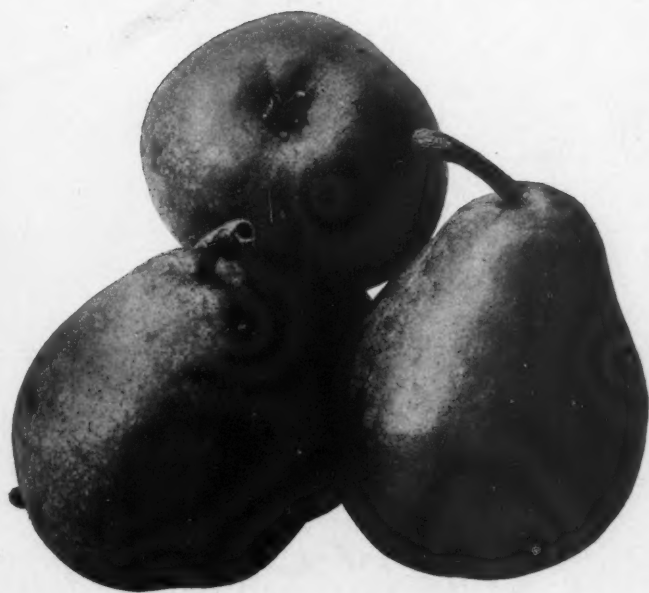
Vol. 10. No. 4

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JANUARY, 1913

Horticultural
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Ithaca, N. Y.



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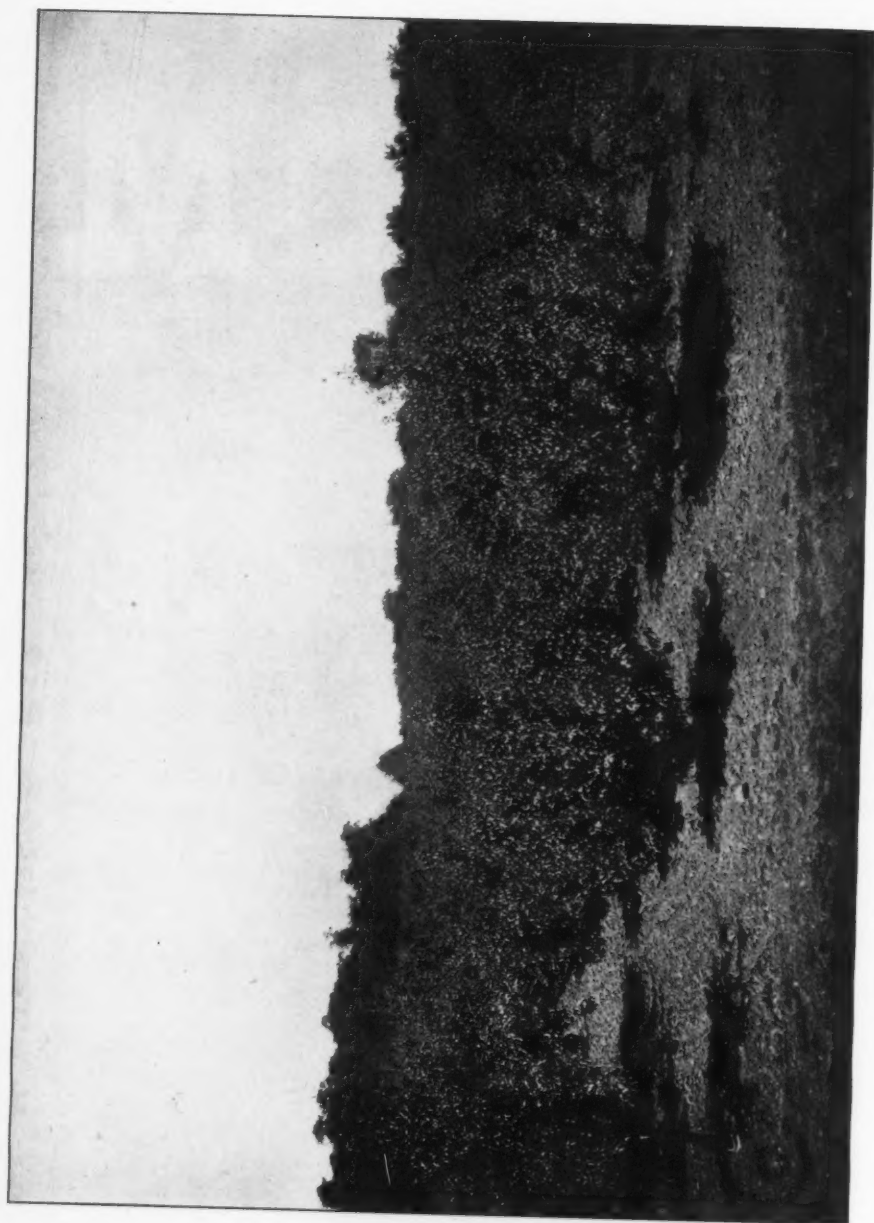
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UP-TO-DATE PEAR ORCHARD, COMPOSED OF ANJOU ON DWARF STOCK.

The Cornell Countryman

Vol. 10

JANUARY, 1913

No. 4

WHAT IS HORTICULTURE?

By L. H. Bailey

I AM asked for a definition of horticulture; but I cannot define it. I can only describe it. Horticulture represents a group of human affairs; and as all affairs interlock and overlap in their human relations, so is it impossible to set up formal boundaries.

We can not do better than to define it by the old way of naming the subjects of which it is comprised, without attempting to define those subjects themselves. Horticulture, then, is the growing of fruits, flowers, and vegetables, with as many of the scientific facts and practical applications and human ideals, as any man or woman cares to add thereto. This is the popular understanding in North America, and since we cannot change this understanding we may as well accept it.

When there were no plant-breeders known as such and when botanists carried a high disdain of work that may be applied, horticulture took to itself the breeding field and much of the plant physiology field as it relates to the arts of life. It is good testimony to the freedom of the subject that it took the new comers in. It may not have gone very deep, but it welcomed

new points of view. For every related subject that is dropped, every remaining subject becomes deeper and more intense.

What horticulture shall comprise in a college organization is a question by itself, determined by the particular form of administration in a given institution and by the means and men at disposal. For the best efficiency in teaching and research, the subject should be divided into several parts practically or wholly independent; but even then it may be well for any organization to associate them into one administrative group to prevent duplication, to use the equipment economically, and to forestall inharmonious teaching in very closely associated work. In this case, and I hope this may be the development at Cornell, the name Horticulture may still be retained to designate a group association.

There is no end to the horticultural field any more than to any other field, either in farming or in teaching. There is abundant growing room for men and women; and the horticulturist places his hands on some of the choicest products of the earth.

PROBLEMS OF THE FRUIT GROWER

By Lloyd S. Tenny

Hilton, N. Y.

THE average fruit grower is conducting his business primarily from the standpoint of making it pay. We will grant that there are fine opportunities on the farm for recreation and for the pleasures that come from books, magazines, and other sources of entertainment and learning. The primary object of the farm, however, is to make a living for the owner and his family. The problems, therefore, that are of vital interest to the farmer, are those which affect either the size or conditions of his crop, or the financial returns when his crops are sold.

THE PROBLEM OF THE FARM EXPERT

In the past we have realized that our great problems have been connected with the producing end of the business. There are still great problems which confront the fruit grower, who desires to produce annually large crops of fancy fruit. To this end our colleges and experiment stations maintain a force of scientific investigators who study the various plant diseases and insect pests, working out methods of control and advising the fruit grower when to spray and with what mixture. These things are important and are the basis of all successful fruit growing. In fact, the diseases and pests are so numerous and can be controlled only by such systematic and thorough methods of spraying, that the problem is getting bigger than the average farmer can handle by himself and the question for him to solve is how he may secure the inspection and advice of a competent expert, who knows from first hand observation the conditions in the particular orchard under discussion. To this end there are being developed various plans of Fellowships, Scientific Experts, and Farm Bureaus, which aim to supply this scientific knowledge in one way or another to the individual farmer. One of the great problems before our farm people

today is to work out the most successful method of securing this scientific yet practical advice. No doubt different methods will be used in different places; the problem is for the individual farmers in any district to have the needed information readily available.

THE PROBLEM OF SECURING BETTER FRUIT BY THINNING

Too much attention in the past has been given by the fruit growers to securing large yields. Possibly a better statement would be that too little attention has been given to the production of fine quality. A large yield is something in itself always to be sought after, but a large yield with poor quality is a distinct drawback. Better have, if necessary, a small crop with fancy fruit, for then the reputation of the fruit will be maintained and a more active demand for that fruit will be secured. Thorough spraying is the basis of good quality, yet it is doubtful if the average grower can spray with sufficient thoroughness to secure a uniform grade of fine fruit. This applies especially to the eastern apple growers who have the large spreading trees found in the old orchards. A method which can be used, however, to secure better quality in the harvested fruit is that of thinning the fruit during the summer months. Some of our best fruit men have realized for some time past that there were distinct advantages in thinning fruit and have practiced it. If the thinning operation is carried along during the summer months or even well toward harvesting time it offers an opportunity to discard much, if not all, of the poor fruit on the tree. When a tree is overloaded, it is impossible to secure the proper size and color without thinning. Some growers maintain that it is impracticable to put ladders into the trees and do a thorough job of thinning. That it is practicable on an



WELL CARED FOR WESTERN NEW YORK ORCHARD.

average farm has already been determined. It is a problem, however, for the farmer to arrange his labor and other work so that this additional work may be accomplished.

MARKETING PROBLEMS

But by no means are all the problems solved when a large crop of fine fruit has been grown. We are beginning to realize more and more that the fruit in itself is of little value to the grower; it is only valuable as it may be converted into money. This is a marketing proposition. With the development of our great railroads, the increase of cold storage facilities and refrigerator cars, and with the resulting wider distribution of farm crops, this problem of marketing becomes a more and more difficult one. It is now realized that the selling of the farm produce is a distinct branch of agriculture, separate and apart from that of production. Without question the great problems of the fruit grower of today lie along this line of his work. That individual or community will be

successful largely in proportion as the marketing problems are solved. Unfortunately, too, this is a branch of agriculture which is receiving almost no attention from our Experiment Stations. The farmer must work out his own salvation along this line. Coöperative marketing has been the solution of this problem in some sections. Is this practicable everywhere? If not, what will take its place?

There must be proper distribution of a crop and how may this be secured without coöperation? What is the best method of packing and selling a crop of peaches or apples from a small orchard in a district where orcharding is not the principal industry? How much waste is there in a barrel of apples after it leaves the farm before it is sold from the grocery store? These and many more are the questions that are of great interest to many of our fruit growers over the state. The greatest problems before our growers today lie in this field of converting their farm produce into cash.

PEAR CULTURE

By D. K. Bell

Rochester, N. Y.

IN MY judgment there are three important items to be considered in pear culture, *first* the soil, *second* the selection of trees and varieties, and *third* management.

It has been demonstrated that the pear succeeds best on a clay loam with a clay subsoil, although it will do well on a gravelly loam with a clay subsoil.

On the lighter sandy soils, or on peaty or black muck soils the orchard will not do well. On the former the trees are more susceptible to disease, especially blight, while on the latter they tend to an unhealthy growth and winter injury, and the fruit is of an inferior quality. If the orchard does not have good natural drainage, it should be underdrained, because pear trees will not thrive in ground that is cold and wet.

Never locate an orchard on low land but select a situation where there is plenty of sunshine and free circulation of air, as all trees require sunlight and ventilation to mature the wood and ripen the fruit.

The Bartlett is one of the standard varieties of pears and has for years been grown very profitably in most parts of the state. It is, however, more susceptible to blight than many other varieties, but this can be largely controlled by timely elimination of all blighted limbs as soon as they appear. Close observation is necessary because if once established in the orchard, blight is apt to spread rapidly. The cutting should be done below any signs of blight on the limbs and the diseased portion should be burned immediately.

The same will apply to Clapp's Favorite which is also a profitable variety. It is a large summer pear and although a good shipper is especially adapted to local markets.

The Seckel is one of the best and most profitable pears grown. It is best adapted to gravelly or sandy loam

soils. It does not blight seriously and the tree is one of the hardiest.

The Sheldon is a pear of good quality and a good seller but the fruit is liable to drop prematurely and, therefore, can seldom be grown with profit. It is somewhat susceptible to blight.

The Bosc is one of the best varieties both as to quality and commercial value. The tree is a crooked and irregular grower and should be top-worked on some strong growing variety. Do not use Kieffer stock, however, as it does not make a good union and decay is liable to set in. White Doyenne seems very good as it makes a healthy union. Sheldon or Boussock are also good. It is not as productive as some other varieties. It does not require much thinning as the fruit generally grows single and not in clusters, as do most other varieties. This variety is worthy of more extensive growing.

Winter Nellis is one of the best and most popular winter varieties, as the fruit is of the highest quality and is used largely for dessert purposes, therefore commanding a high price. It is a crooked grower like the Bosc and should be similarly top-worked. It is very productive and often requires thinning. The tree is very hardy and not as liable to blight as many other varieties. The above varieties should all be grown on standard stock.

The Anjou, the noblest Roman of them all, succeeds best as dwarf, budded on Quince stock. The tree is a good, strong, healthy grower and very productive, succeeding best on a clay loam. The fruit, when well grown and properly handled, commands the highest price on the market. It is a late autumn or early winter variety, used largely for dessert purposes. It has, however, a serious drawback in that the fruit is liable to be blown off by the heavy September winds. This is due to the fact that the Anjou is a

large, short stemmed variety, growing on spurs. In some years the losses will be very heavy. It does not drop of its own accord as does the Sheldon or Columbia.

We now come to the preparation of the land for planting. The soil should be thoroughly worked the year before setting, and the ground should be as near the natural level as possible, so that the trees may be set at a uniform depth. This is very important. When setting, all surplus and damaged roots should be trimmed off, and the tops should be headed back. The heading back should be about equal to the trimming of the roots. I head back to one or two buds knowing that the remaining buds will push forth stronger than if more are left.

Care should be taken not to plant too deep. Two inches below the collar or union for dwarfs and even with the collar for standards is sufficient. There is nothing gained in planting deeper as the roots will eventually come to the surface in seeking plant food.

The distances in planting depend upon the variety and the care given the trees. If they are annually headed back, as they should be, the result will be larger trees and it will be necessary to give them more room than if this method were not used. With the system that I follow the distances should be for the standard varieties named, twenty-five feet each way. For dwarfs fifteen by twenty feet is sufficient.

The land in the young orchard should be thoroughly worked. This can be done by planting to some hoed

crop. If the fertility of the soil is such that it will produce a good farm crop no manure or other fertilizers need be applied for the first few years, after which the ground should be enriched. For this purpose I prefer well rotted barnyard manure. What fertilizers are best and what quantities are to be applied will depend obviously upon the needs of the trees.

In pruning the orchard, the trees should be trimmed systematically, according to the form that the grower has decided upon. I prefer the pyramidal form and trim to a leader. This is done by cutting the lower branches to four or five buds, those higher a little shorter and so on to the leader which should be left longer.

The person who trims should be able to tell what to cut, how to cut, why he cuts, and the probable effect of his

trimming upon the tree.

The cutting back and thinning out should begin with the planting of the orchard, and must continue annually, to obtain the highest results. Whether this is done closely, must depend upon the variety and the vigor of the tree. Some trees have a tendency to set fruit more than others. It is necessary to watch the orchard and on trees so disposed the fruit spurs should be cut off; otherwise the tree will overbear and becoming exhausted will go into decline.

Trimming should be done during the dormant season which, in Western New York, is between November first and March first. No trimming should be done after the sap starts, as the removal of limbs after that time reduces the capital of the tree, and consequently, its vigor.



A WELL DEVELOPED BEURRE BOSC TREE

If a tree has become stunted and exhausted, from overbearing or other cause, it can, if not too far gone, be revived, by cutting back into the old wood and allowing the tree to make a top of new wood. I have done this repeatedly with success.

The orchard should be kept in thorough cultivation during the growing season, but this should cease about the first of September to allow the tree to ripen its wood. Cultivation has two objects: *First* to conserve moisture by keeping a fine mulch over the surface of the ground; and *second*, to liberate the plant food and make it available for the trees.

Although I approve of this method of cultivation as the safest, I recognize the fact that pears may be grown successfully and profitably in sod. It is, however, essential, in this form of pear culture that the grass be kept trimmed as closely and carefully as on a lawn, either by mowing it often, or by pasturing it with sheep or hogs. It is also necessary that the fertility of the soil be maintained by top dressings of barnyard manure, or other fertilizer. This is demonstrated on my farm,

where I have a thrifty and profitable orchard, which has been in sod for thirty years. It is very productive and the fruit is of the highest quality, although the orchard is forty-five years old, and is made up of dwarfs, as well as standards. The trees are still vigorous and healthy.

Nearly all kinds of pears should be gathered at least one week before they naturally ripen on the trees, as pears allowed to ripen upon the tree lose much of their substance and quality.

In selling, the fruit grower should carefully study the conditions of the different markets, their requirements, the packages most in favor, and also ascertain the name and address of some responsible house with which to deal. He should pack his fruit honestly; it should be put up in a strong, attractive package and marked for what it is, and nothing else. If he has carefully done this he is in a position to realize the most for his crop, and will deserve it. It is carelessness in culture, a lack of knowledge for the wants of his trees and thoughtlessness in handling and marketing his crop, that accounts for most of the failures.



A PEAR ORCHARD WITH POTATO INTERCROP

THE DEVELOPMENT OF THE PEACH INDUSTRY OF NEW YORK STATE

By *E. L. Markell*

Instructor in Pomology, Cornell University

THE beginnings of the commercial peach growing in New York State date back to the early part of the nineteenth century. Among the earliest plantings recorded is that of a small orchard of about a dozen trees set out in Monroe County in the neighborhood of Rochester in the spring of 1817. These were all seedling trees of the Royal Kensington variety. This orchard and others that were soon planted near it grew so vigorously and yielded such abundant crops, that the growing of peaches for marketing purposes rapidly developed. By 1825, the fruit was so abundant, and the marketing facilities were so poor, that many times the growers would throw the peaches from their market wagons into the river, rather than sell it for less than twenty-five cents a bushel. This rather discouraged the growers, and plantings decreased for a number of years. A demand for this fruit had been established, however, and the public had to be supplied with it, and by 1850 the peach was commanding in ordinary seasons from two to three dollars a bushel. These profitable prices naturally resulted in a renewal of the industry, and by 1853 some of the growers between Rochester and Lake Ontario had orchards of upwards of a thousand trees. It is recorded that in the fall of 1854 about 40,000 baskets were shipped out of Charlotte alone, chiefly by boat. During the season of 1859 over 80,000 baskets of peaches were shipped from Rochester by railroad. By this time the natural enemies of the peach tree became very troublesome and threatened to exterminate the industry. The "yellows" had been introduced, it is said, in nursery stock from New Jersey, and the borers and plum curculio had also made their appearance gradually and almost unnoticed. They now came forth with all of their strength,

and the records of peach growing for the next forty years are chiefly of struggles against these obstacles. New sections of the state were developed as peach growing centers from time to time, and for a while, each one appeared to be immune from the attacks of insects and disease, but within a few years, they too were over-run, and it was only the constant demand and the high prices paid that kept the industry from dying out. The improved methods of orchard management so widely adopted during the past generation, has again put the industry on a firm basis.

The Census of 1910 records a total of 2,457,187 peach trees of bearing age in New York State. This shows a slight decrease since 1900, but when we consider that there is almost an equal number of young trees not yet in bearing, we are forced to conclude that the industry is decidedly on the increase at the present time. Over 66% of the trees and 73% of the crop is produced in five counties, as follows: Niagara, Monroe, Ulster, Orange, and Wayne. Niagara takes the lead with a production of about 30% of the total crop of the state.

The peach is undeniably one of the most profitable crops grown when planted under favorable conditions. Climate is the chief limiting factor to its productivity. The peach is rather sensitive to cold, and it is not a sure crop in regions subject to extreme winter conditions, or to late frosts in the spring. The most favorable localities in this state are those in close proximity to large bodies of water, which tend to moderate the extremes of temperature. Thus we find that almost two-thirds of the peach orchards of the state are located along the shores of Lake Ontario. The remainder are located chiefly in the Hudson Valley or in favored spots near inland lakes.

The peach generally comes into bearing the third year after it is planted, and profitable crops may be expected by the fourth year. The production steadily increases until the tree is ten or eleven years old, when the average yearly yield should be three to four bushels per tree, and then the yield gradually falls off. If an orchard is given the best of care, it ought to yield profitable crops until it is 18 or 20 years old. Under ordinary conditions, how-

with humus. A clover sod, when turned under, makes an ideal soil for the young peach tree, if it is not too rich in nitrogen. If clover sod is not available, about ten tons of manure per acre, turned under in the spring, will serve the same purpose. Either of these should furnish plant food enough for the trees until they come into bearing. After the tree begins to bear, it generally needs liberal applications of potash and phosphates, but all of the



MATURE ELBERTA PEACH TREES.

ever, many of the trees begin to succumb to the attacks of borers or disease at the end of ten years and it is not profitable to keep an orchard longer than 13 to 15 years.

No fruit responds more readily to good care and management than does the peach, and no fruit goes down more rapidly if it is neglected. The peach will thrive on almost any well drained soil, but it prefers the lighter types, such as the sandy or gravelly loams. The popular belief that the peach is well adapted to poor soils that are not fit for other crops is erroneous. The soil should be rich and well supplied

with nitrogen. A clover sod, when turned under, makes an ideal soil for the young peach tree, if it is not too rich in nitrogen. If clover sod is not available, about ten tons of manure per acre, turned under in the spring, will serve the same purpose. Either of these should furnish plant food enough for the trees until they come into bearing. After the tree begins to bear, it generally needs liberal applications of potash and phosphates, but all of the

nitrogen required may be secured from leguminous cover crops and barnyard manure. The condition of the trees should be the chief indication of the need for this element. If the foliage begins to grow pale yellow, and there are no borers nor disease present, it is a safe indication that the trees need nitrogen. Too liberal applications will result in too luxuriant growth at the expense of fruitfulness.

The orchard should be carefully pruned and sprayed every spring. The fruit should usually be thinned, and especially if the crop is heavy. It should then be intensively cultivated



THREE YEAR ELBERTA PEACHES SHOWING GOOD CULTIVATION.

until about the middle of July when the cover crop should be sown. Thorough cultivation is one of the most important factors in the growing of peaches. The conservation of water for the peach tree is so essential that some of the growers cultivate right up to the time the fruit is picked in seasons of a heavy yield.

The most important consideration of the prospective peach grower should be the selection of varieties. He is generally tempted to plant just what the majority of peach growers have planted, without allowing his own judgment to influence him at all. It can not be denied that the varieties most largely grown at the present time are not as high in quality as they should be. They are so widely grown, however, that they have become well known in the markets, and in consequence, there is a far greater demand for them than for those of higher quality. The white fleshed peaches, as a class, are superior to the yellow fleshed, but there is an unreasonable popular prejudice which in most markets causes the yellow fleshed peaches to sell at from 15 to 20% advance over the white fleshed. The public is gradually being educated, however, and it is slowly beginning to demand varieties of higher quality.

J. H. Hale, the Peach King, made the following remarks at a meeting of the New York State Fruit Growers' Association some years ago: "The yellow peach is usually of low grade. As consumers come to appreciate fine

table peaches, they want the higher grade white fleshed peaches, and will pay more money for them. When I first planted my orchard in Georgia, I foolishly planted 60,000 trees of Elberta. Since then, I have planted white peaches only. In Connecticut, we are planting white peaches almost entirely."

There are a great many people in our cities who desire a better peach than Elberta. While the Elberta has the shipping qualities that enable it to withstand rough treatment and long shipments, it is not a good enough peach to warrant its being grown exclusively, and thrown upon the market in such quantities.

The following list of varieties recommended for commercial planting in New York State has been worked out with considerable care, but thorough investigations should be made regarding their adaptability in given localities, before they are planted. The varieties have been arranged in the approximate order of ripening:

Carman, white fleshed; Saint John, yellow fleshed; Champion, white fleshed; Early Crawford, yellow fleshed; Niagara, yellow fleshed; Elberta, yellow fleshed; Smock, yellow fleshed; Stevens Rareri, white fleshed.

The following list of varieties of high quality makes a good succession for planting in the home garden:

Greensboro, Carman, Champion, Early Crawford, Niagara, Chair's Choice, Belle of Georgia, Stump, Late Crawford, Hills Chili, Stevens' Rareri.

ANNUAL MEETING OF THE WESTERN NEW YORK HORTICULTURAL SOCIETY

By Dudley Alleman, '14

AN OLD precedent was shattered this year when the Western New York Horticultural Society held its regular winter meeting in Rochester, December 11, 12 and 13. In the past the meeting has been held in January, shortly after the time of the New York State Fruit Growers' Association. The latter organization will meet this year January 15, 16 and 17.

The meeting was well attended by old and experienced fruit growers and the program was very well planned. Every speaker was an authority on his subject and the practical nature of the addresses was a feature of the session. President W. C. Barry of Rochester delivered the opening address Wednesday morning, welcoming the old members back for another year and commenting upon the number of new faces in the audience before him. He was followed by Professor F. C. Stewart of the Geneva Experimental Station who spoke on plant diseases. He stated that the apparent slowness of the plant pathologists in investigating new fungus diseases was due to lack of funds rather than lack of inclination, and that if the wherewithal were provided they would gladly "tackle" some of the serious problems now confronting the fruit grower.

In the afternoon Dr. W. H. Jordan, Director of the Geneva Experimental Station gave an address on soil fertility. He was followed by Professor C. S. Wilson of the Department of Pomology who discussed the thinning of apples. He spoke of the increasing demand for better quality in fruit and recommended thinning as one of the best ways to accomplish this end. Mr. Elwell Baker of Forest Lawn treated the subject of cover crops. Rye and vetch, he said, made an ideal cover crop, as they grow during the winter, furnish large amounts of nitrogen and humus and decay readily.

Mr. C. K. Scoon of Geneva closed the lectures of the day with a lecture on the mistakes he had made in twenty-five years of cherry growing. He recommended the Mazzard stock and urged fruit growers not to plant cherries closer than twenty feet.

On Thursday morning a symposium on coöperation was held. It was the opinion of all present that if an efficient highly paid business man were at the head of any coöperative association its success was assured. In the afternoon Dean Bailey addressed the convention. He was followed by Professor P. J. Parrott, of Geneva Experimental Station who talked on the apple aphid and allied forms. Dr. L. L. Van Slyke of the same institution spoke on commercial insecticides. Seth J. T. Bush of Morton, then discussed the subject of the possible overproduction of peaches. If all the peach trees in the country, he said, should bear even one-half a crop, the markets would be glutted. As it is, some of the peach growers of the state received very small returns from their crop this year. Extreme dissatisfaction was shown by the fruit growers present, with the very poor service given by the New York Central Railroad during the peach season.

Resolutions were passed condemning that railroad and recommending to the Public Service Commission that a charter be granted for another road thru Western New York to compete with the Central. The last speaker of the afternoon was Mr. George T. Powell of Ghent, who spoke on pear culture and discussed many of the more important varieties.

Friday morning, Professor Donald Reddick of the Plant Pathology Department spoke on the apple scab situation. Milford L. Hakes of Albion gave some of his experiences with the Bartlett pear. In his orchard the trees

were at first planted fifteen feet apart, and for a number of years very poor results were obtained. As a last resort every other row diagonally was cut out. The affect was apparent the following year and the orchard soon became one of the best in that section. Mr. Hakes thinks a large rooting surface is essential to success with this variety.

Besides the addresses one of the most pleasurable and instructive parts of the meeting were the "question box" discussions led by Mr. Edward Van Alstyne of Kinderhook. The way Mr. Van Alstyne brought together the abstruse and often ultra scientific discussions of the plant disease and entomological experts and the intensely practical questions of the fruit growers was truly masterly. The exhibits of fruit and machinery, while not as extensive as at some former meetings, was of the highest quality. A feature was the showing made by David K. Bell of Rochester, whose pears won the five and ten plate displays and most of the single plate premiums. Several of the exhibits of single plates of apples were very nearly perfect, but the packing in the box and barrel exhibits were not up to standard.

The machinery was displayed in the

basement of Convention Hall and consisted of the usual display of spray machinery, cultivators, etc. A peach grader based on the two rope principle, attracted much attention from the fruitgrowers and was recommended highly in the meeting by practical men who had used it with success. This, after all, is the best test for a new machine.

Three of the students from the college, R. S. Williams, '13, H. M. Doyle, '13, and J. J. Swift, '14, did the judging. This is a very valuable experience, and one for which the students of the college should be grateful. Not only to the fruit judges, but to any of the students of our institution who cared to be present, did the society offer a hearty welcome. The fact that one came from Cornell entitled him to all the privileges of a member. Thru these columns the writer wishes to thank the society on behalf of the students who were present and say that he knows of no more profitable way for one interested in the science and practice of horticulture to spend a few days, than to mingle with these practical fruit growers, listen to their talks, and set for himself new standards in the way of ideal orchard management.

LAND VALUES

By Edwin Smith

Fruit Storage Investigator, Victoria, B. C.

"Go West, young man, and grow up with the country."

—Horace Greeley

IS THE West "grown up?" What with the dispelling of the bison, followed by the flight and slow extermination of the Indian and with the evolutionary forces that have caused these changes, a person living near the Atlantic is apt to fear for the chances of the eastern youth who today takes seriously the Greeley advice given decades ago. But those fears are not well founded. The West is yet in its infancy and it is sure to be in a healthy

growing period for a long time to come. There are yet vast tracts of uncultivated land that has yet laid asleep, waiting to have a chance to smile in vegetative productiveness thru the application of water. There are far-reaching forests that have not yet suspected the rush and greed of the sawmill. And there is an incomprehensible mineral wealth west of the Rockies that the miner's drill has never chipped.



A \$1,000 PER ACRE APPLE ORCHARD IN THE WEST.

Yet to the young and uncapitalled agriculturist the West often appears to be in a very precocious infancy, far beyond its years. Often this precocity is advanced to such a degree that some parts of the East do not seem to have yet reached maturity when we think of land values. This advanced valuation of the West has come about thru the efforts of the real estate promoters and speculators more than it has thru the production of the land itself. Thus we see bare, uncleared land, eight and ten miles from a shipping point and over a thousand miles from a market selling for from \$200.00 to \$400.00 per acre. We see city lots selling for from \$1,000.00 to \$10,000.00 each when they are six and eight miles from actual city settlement and many years removed from the time when they will be visited by paving and building contractors.

It is a most astonishing situation, for the lots will probably never be worth that figure from the production point of view, which is the only sound point of view upon which to base land values. Still property sells readily to eager buyers. The uninitiated would ask, "Why is it?" But to those who have seen the spirit of the western "boom" and have felt the fascinating lure of the

real estate game it is no wonderment, for if land is seemingly destined to rise in price investors are not slow in "picking it up," no matter how high the price nor how low the value. There are not many men who are above taking the unearned increment. In fact, the West is full of men who are spending their life looking out for it.

Consequently we see men paying \$200.00 to \$400.00 for bare land and planting it out to trees, not that they ever expect to get their money back from fruit returns, but they know that when the orchard is six years old it may be sold for \$800.00 per acre and when it is eight years it may be sold for \$1,000.00 per acre. Thus the West is growing, but it is a sporadic and unintelligible growth to the young man with small capital and with ambitions for a permanency in establishment.

Let us look to the East and see if it has yet reached its growth. At a recent date the writer had offered to him 620 acres of hardwood land, uncleared, in the most promising region of the Michigan fruit belt, one-fourth of a mile from a railroad station and with the excellent markets of Milwaukee and Chicago right at its door, for \$25.00 per acre. The first cost of clearing would be no greater than that

of a tract I saw held in the Okanagan Valley of British Columbia for \$400.00 per acre. In New York state I have seen a great deal of land sell for from \$30.00 to \$75.00 per acre, cleared and ready for business, close to market and but a day's ride from some of the best and largest cities in the world. It was good land, too, but it was sold upon a *past* productive basis.

In the West land is sold upon a *future* productive basis. The production is very often hypothetical to a point that makes it unreal and impossible. In time the price of this land is bound to seek a level with its value based upon actual productivity then, but, "we will sell before then."

There is no doubt that more produce can be raised and that fruit trees will make a greater growth on the rich, irrigated lands of the Hood River, Yakima, Wenatchee, Okanagan and many other valleys of the northwest than on the sturdier and older soils of the East. But the East does not know the productive possibilities of its soils for they have not been handled in the past as they should be handled today. Neither does the East appreciate the advantages of its proximity to markets. "Distance" is a sad tale in connection with the western market situation and it should be taken more

into consideration than it is when reckoning land values.

But if we are in the real estate game for the sake of speculation there are also opportunities both in the East and in the West. What is being done along this line in the West has already been cited in a previous paragraph. If the buyer pays \$400.00 for bare land in the West and at the same time pays \$50.00 for bare land in the East, invests the same amount of money in draining and planting in each and after ten years sells the irrigated land for \$1,200.00 per acre, what will he have to sell the eastern farm for to make an equal profit? Are eastern orchards worth \$150.00 per acre? Can you bring eastern orchards into bearing in ten years?

The last question can not well be answered at present for the graduates of eastern agricultural colleges have not done as much as they might in way of going on the land to show the world its value on a true productive basis. When they do this, as they are bound to do in the near future, the young man will be better able to know where land values are to make the better and healthier growth and then he will be better able to consider the weight of Horace Greeley's well said advice, construed in the present day.

To John Craig

By Hugh Findlay

He was a friend to Nature's beauty and
to Nature's art,
He caught the Nature's message in his
soul,
Full of eventful years, he reaped a
harvest of kind thoughts,
He lived content and clothed his life with
work,
He stepped triumphant and he faced his
duty, conquered Fate,
In manly workmanship in field and wood,
Simplicity his moral strong, and manli-
ness his creed,

His conscience clear, his will invincible,
He felt one right, and that to be a brother
to all men,
His kindness and his cheer he's left
behind,
He mantled his heroic life with love and
sympathy,
He planted sunshine where he found a
cloud,
And as the constellations gleam so bright
before the dawn,
So memories of this good man will live
on and on.

THE BUSINESS OF FLORICULTURE

By A. C. Beal

Assistant Professor of Horticulture, Cornell University

THE florists are the most intensive cultivators. In a few handfuls of soil in a flower pot, they are able to grow a plant many times larger than the pot. To accomplish this result, it must be practicable to control the climate, moisture, temperature and, to a large extent, the light. This can only be done practically and successfully by means of greenhouses. This is true in a greater degree in America than in Europe where many commercial flowers are grown in the open.

Not many years ago greenhouse structures were looked upon, more or less generally, as a means for the gratification of the desires of a comparatively few wealthy individuals, or to serve for the growing of ornamental plants of botanical interest but of no strictly economic value. Within twenty-five years or less, this view has changed; and now the construction of greenhouses and the production of cut flowers and plants are regarded in much the same light as the development of a manufactory, for the modern greenhouse establishment is often in its organization and capitalization, and more often in its management, a factory where the forces of nature are utilized to reverse the seasons and convert into wealth the products of the soil.

Forty years ago, greenhouses generally were small structures, probably ten or twelve feet wide and fifty feet long, glazed with small panes of glass, and heated by flues. Some of the more progressive or fortunate growers possessed houses of greater size heated by hot water or steam. The investment compared with average establishments of the present day was quite small. The same is true of the volume of business done in these establishments. It was sufficient, however, for a hard working proprietor, generally of European birth, to make a living and to put something aside for a rainy day.

The methods of culture were crude. It is said that even at Boston, then the leading flower market, it was impossible to secure one hundred roses at any time when that number was wanted. To fill such an order either required notice sometime in advance in order that the plants which were then largely grown in pots or boxes, could be taken into the greenhouses and forced into bloom or it was necessary to send some one to visit all the greenhouse establishments for miles in every direction to gather up a supply. There were few roses to be had before the holidays, and it was regarded as a notable achievement when it was found that varieties like General Jacqueminot could be forced for Christmas. Again, at certain seasons, every one had roses, and the supply was greater than the demand. This latter came about through the practice of some growers who planted their roses in deep beds.

The production could not be controlled under this system. This led to the adoption of the method of growing plants in shallow benches since it combined the advantages of two systems indicated above, thus enabling the grower to have a more constant supply of flowers.

The adoption of the system of shallow bench culture marks the turning point in American commercial floriculture. With it came the increasing demand for long-stemmed flowers. Instead of allowing all the buds on the flower stem of carnations to develop, it became the practice finally to remove all but the terminal bud, so that at the present time carnation flowers should have eighteen to twenty inches of stem.

This change in taste reacted on the methods of greenhouse building, for in order to grow long-stemmed flowers it was necessary to make the greenhouses higher and at the same time afford more light. The developments

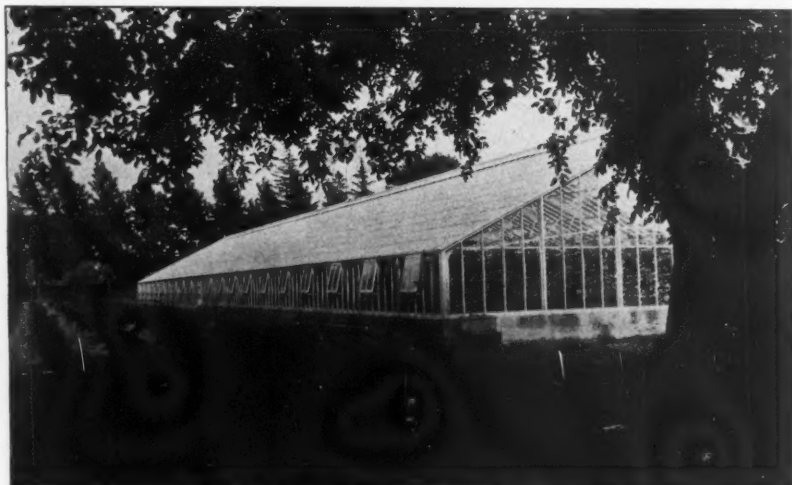
in the manufacture of iron pipe whereby it became a staple article of commerce, enabled greenhouse builders to substitute pipe for the heavy wooden posts used for the walls and interior supports. The general adoption of cypress which combines great strength with great durability, led to the reduction in size of the other wooden members of the house. The dimensions of the houses increased as well as the number.

The development of greenhouses has taken two directions, first, the ridge and furrow type; and second, the very large, separate house type. In the former, by supporting the valley gutters upon iron posts seven to ten feet high, and by eliminating the interior walls, it is possible to cover a great area with glass. In the cities it was possible to cover entire blocks, as may be seen at the establishment of Peter Reinberg, in Chicago, where many entire blocks are covered with greenhouses. These ranges are in reality large greenhouses for having no division walls, one crop is grown in the entire area. This great establishment covers between twenty and thirty acres of land, and one cannot

but be impressed with the magnitude of the business as he looks over acres of carnations and walks through acres of blooming roses. Under the ridge and furrow system of construction there is apparently no limit to area which can be covered. This is impressed upon the visitor to the establishment of Pochlmann Bros. at Morton Grove, Ill. Here is an establishment, probably as large as the one given above, but composed of two great ranges of houses which are being added to nearly every year.

The separate or detached house has had a remarkable development also. The largest individual house in the United States is 50 x 1350 feet, and 23 feet high at the ridge. Twenty-eight lines of one and one-quarter inch pipe are sufficient to heat the house in the coldest weather—thirty degrees below zero. Houses five, six or seven hundred feet long and thirty, forty or fifty feet wide, are not uncommon. The extreme in width is 172 feet.

One may ask why build such large houses? Are they not difficult to heat and operate? It has been found, for example, that a house 40 x 700 can be heated with eighteen runs of pipe,



THE LARGE SEPARATE TYPE OF GREENHOUSE

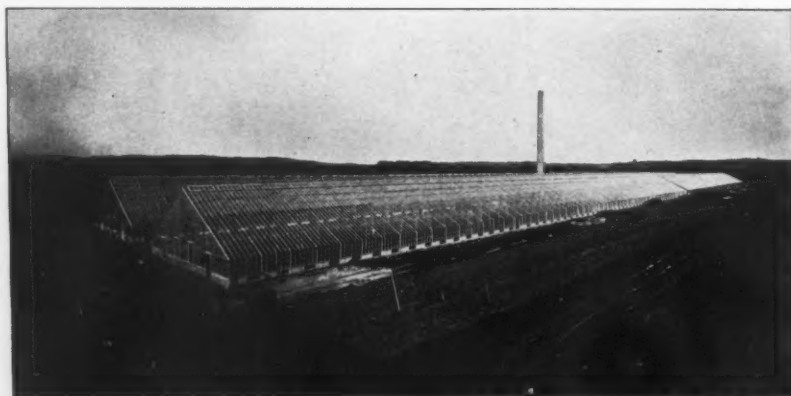
whereas a twenty foot house of the same length requires twelve runs to heat it to the same degree of temperature. The greater the volume of air in the house, the less the fluctuation in temperature. This, then, is one of the great advantages of the large house or the series of connected houses.

I have indicated some of these large establishments not for the purpose of boasting upon the achievements of florists, but to point out some of the engineering achievements. In long runs of pipe the expansion of the pipe must be taken care of, the circulation must be economical, and the radiation adequate. All the devices in use in large heating plants, no matter what their cost, if adaptable to greenhouse heating, are employed by the florists. Steam traps and pumps, electric circulators and the various means of improving circulation, and mechanical stokers, are used. It is said that in one large plant the coal is delivered in the coal sheds from gondola cars run upon an elevated track and dumped. The establishments using ten thousand tons or more of coal must use economical methods of handling fuel. The boilers are the largest sizes used in heating work. One to two hundred horse power boilers are very common. Altogether it will be noted that florists have heating plants that rank them

among the largest manufacturers of heat.

The foregoing will serve to indicate that a modern greenhouse establishment is in a sense a flower factory. In the United States there are, according to the Census of 1910, 10,614 commercial florist establishments reporting products valued at \$34,872,000. The number of establishments increased twenty-one per cent. and the value of products increased \$16,113,000 or 85.9 per cent. in the last ten years. The increase for the middle Atlantic division was 67.1 per cent., while the largest increase was in the west south central division, 268.9 per cent. The Pacific division increased 200 per cent.

In New York, the leading state, there are 1398 commercial establishments producing \$5,149,000 worth of flowers and plants. The amount of land covered with glass is not known at this time, but in 1899 it was 13,635,440 square feet or 313 acres. This represented an investment of \$8,692,939. The value of flowers and plants produced by florists ranked ninth among the important crops of New York State. This represents only the commercial phase of the business. It does not include the value of the ornamental plants grown upon public and private grounds. There is no value placed upon these, but if they could be in-



ONE OF THE LARGE MODERN FLOWER FACTORIES

cluded the amount would be vastly larger. In ascertaining the value of the other farm products of New York, we have first the total value of the fruit or of the vegetables, for example, produced upon all farms in New York. Then we have a classification of the farms into fruit farms, vegetable farms, and flower farms. For these there is a statement of the investment and the value of products. When comparing the status of floriculture with the other branches of horticulture and agriculture, make the comparison from the latter figures so that the deductions may be fair to floriculture.

We have shown something of the development and present status of the business. The business is no longer in the hands of persons of

European birth, for the capital is furnished largely by Americans. Large amounts of capital, from \$100,000 to \$500,000 or more, are invested in some establishments. Business men believe that the business of selling flowers is capable of yielding as good financial returns as any line of commercial work. It has been abundantly proven that a bright, capable florist, with ability to manage a business, can enlist any reasonable amount of capital for launching a greenhouse enterprise. With the continual growth in wealth and population, there is an increasing demand for flowers and plants, and it is certain that no line of horticultural work offers greater opportunities for the young man than floriculture.

VEGETABLES AND THE HIGH COST OF LIVING

Albert E. Wilkinson

Instructor in Horticulture, Cornell University

SO MUCH is heard of late concerning the high cost of living, and in many cases so poor in quality is the produce that is obtained in exchange for money spent, that some discussion of this subject from the point of view of the vegetable industry would be worthy of consideration. This high cost of living, as far as vegetables are concerned, could be reduced somewhat, providing the consumer would look into or study some of the many details, which would have to be taken into consideration, if any form of correction is attempted.

There are at least three ways that could be followed with some chances of success in the reduction of this high cost. *First:* there does not seem to be any good reason, if the consumer has available land, why he cannot become a producer as well as a consumer. It is possible, by proper and thorough study of the question, for the consumer to plan and obtain the maximum quantity and quality of vegetables from the minimum amount

of space. This, however, would require a thorough and understanding study of varieties of vegetables and their requirements, so that not only the best may be selected, but the most desirable from the point of adaptability to conditions under which they are to be grown.

Not only the above should be considered, but some investigations into the sources of where to obtain the most reliable seed would have to be undertaken. Perhaps it would be better to order only certain varieties from one seed house, and certain others from another establishment according as this or that firm has undertaken the more careful selection or breeding of one or more strains of certain varieties.

Some attention should also be given to the advantages of hotbeds and cold-frames. It is without doubt a very desirable addition to any one diet to be able to have succulent vegetables to consume out of their normal season. This, of course, is obtained by the use of greenhouses, but the largest majority

of the consumer-producers are not able to afford this expensive luxury. However, the hotbed, which is a simplified greenhouse, is within the reach of practically all small land-owners, being moreover, very cheap as to construction and quite reliable as to results in the hands of the amateur gardeners. Coldframes are even a cheaper form than hotbeds, but they require to be run in a less cold season than the former.

The garden plan itself with the laying out on paper of the small plot of ground will require considerable study and should be accompanied by either some general knowledge of the requirements of each variety, or should be planned by the use of available written material on these points. The Horticultural Department of the New York State College of Agriculture stands ready to help. In this planning, the question of companion and succession of crops should receive a large amount of careful thought, as it is possible by the use of these two methods to obtain the desired results—maximum returns from minimum space.

Second: Providing the consumer has no available space for a garden or does not desire to become a producer, he may, with great benefit to himself and the producers, place his demands or wants in closer contact with the direct source of supply—the farmers or gardeners. This may be brought about by obtaining from the producer a direct shipment of high class, strictly fresh from the field produce, put up in an attractive package and delivered at the door. Or, if the consumer is near enough to the producer, he may take the democratic market basket and journey to the fields, making a selection himself that will suit his requirements. If the gardens or truck farms are not within easy reaching distance, it is often possible to obtain the desired vegetables from the producers when there is a public market in the city or town. It must be borne in mind, however, that the earlier one comes on this market to purchase, the larger the possible selection and the fresher the

purchases. The latter method seems to be out of fashion in many of our northern cities. It should be encouraged, for it is the solution in many cases of the problem of high cost of living. Many claim that the markets open too early and that there are very poor transportation facilities at that particular hour of the day. In some cases this is true, but there is not any good reason why this could not be changed.

There is also some dissatisfaction with the class of people that take advantage of the present markets. Of course, this patronizing of the markets by the poorer people is a direct result of the high cost of living, and the search on their part for fresh vegetables at low prices. It seems, if they have been wise enough to take advantage of the lower priced market and thereby reduce the cost of living, that their more fortunate brothers may need to copy the method from them, or have more education on this one point.

Third, the consumers may group together and lump their orders, thereby obtaining the desired fresh produce. The Granges, Women's Clubs, Improvement Societies, Neighborhood and other forms of organization, may have for one of their fundamental functions the massing of the requirements of their members in regard to vegetables, following this by subsequent ordering of these supplies from the large wholesale houses, or more direct from the vegetable farms; and, as the order would in most cases be quite large, make it possible to obtain the vegetables at a lesser price than at retail and attain the object desired.

Whatever form is selected to reduce the high cost of living from the vegetable side, it must be borne in mind that the consumer must perform a certain amount of labor for this outcome, as well as the producer. From a study of the situation on both sides, the consumer and producer are at a point where they would be quite willing to advance to a better understanding of each other's side for the mutual benefit of both.

BEE KEEPING IN MICHIGAN

By R. H. Pettit

Professor of Entomology, Michigan Agricultural College

FOR a long time, Michigan has enjoyed the reputation of being a good bee state. The natural forests of basswood and tulip, and the marshes covered with late-flowering composites were early recognized as favorable to bee culture, and as if to prove it, one finds very many bee-trees scattered all over the Lower Peninsula.

Only a few years ago, a farm was hardly considered complete without a few colonies of bees, and even now, one sees the hives scattered here and there, but gradually the industry is coming into fewer and fewer hands. The total number of bees kept is rather on the increase but the number of apiaries is dwindling. One does not have to look far to find the reason for this change. The really good locations are undergoing the change consequent upon the subjugation of the land. Forests are disappearing—the marshes are being drained, to make ground for celery, mint, onions and all the rest, and gradually the apiaries are clustering about certain centers; then too, the old-school beekeeper, with his small apiary of twenty to fifty colonies, is losing out. The colonies die from disease and are not replaced. Many practices in vogue when the field was clean, must be abandoned now because of the danger of spreading disease. The shifting of combs must be done with caution if at all, and all sorts of precautions have to be taken now, whereas a few years ago, one could ignore such measures almost with impunity. Further than this, we have come to realize that we can make more honey and also more money by extracting the crop, than by running for comb honey, and the season of extracting is naturally one of danger. There is a constant tendency toward robbing at that time and if the disease is present, some of the bees that get into the extracting-room are sure

to get contaminated honey and are likely to carry it home to be fed later to the brood. The danger of contaminating the extracting frames is also to be reckoned with. All in all, it is much easier to restrict disease in an apiary run for comb honey than in one run for extracted. The natural consequence is that the business is gradually falling into the hands of fewer but better read and more careful men.

Michigan raises only a little alfalfa for seed, and therefore the mass of alfalfa raised here is practically useless for honey making purposes, but the practice of mixing red, white and alsike clovers is becoming more common every year. Now we use clover as much as anyone can, and this mixture results in an early honey-flow of the finest quality. The clover, with basswood and raspberry, yields the greater part of the early light-honey flow. It is followed in late summer and autumn by a flow of honey from golden-rod, aster, spanish needle, and a profusion of marsh flowers which produce an amber-colored honey of rich flavor.

Our great possession and one that we can hardly conceive as ever being exhausted, is the great area of wild raspberry growth in the North. One sees, not acres but almost counties of cut-over lands grown up to tangles of wild raspberry and blackberry, the honey from which is about as near perfection as can be imagined, and the supply seems inexhaustible. To be sure it is a cold place in the winter but dry because of the sandy soil, and the wintering is done successfully in camps or in log-walled cellars, built where plenty of logs are to be had for the hauling.

The favorite race of bees naturally is the Italian. To be sure, many black bees and more hybrids are to be met, but most everyone seems to

agree that Italians are best suited to our conditions. A very desirable strain of Caucasians is beginning to appear, and their trusting nature is to be appreciated after working with hybrids for a time.

In this part of Michigan we miss the buckwheat that is so universally grown in New York, but after all the amber marsh honey sells at a higher figure than the darker buckwheat, even if it is not quite so rich or highly flavored.

We have a state branch of the National Bee-keepers' Association and this branch maintains quite an elaborate system for marketing the crop.

There is some little interest now awakening among the fruit-growers because orchards and small fruits in the vicinity of bees seem to produce more and better fruit due to the offices of the bees in fertilizing the flowers.

This is very fortunate in the interests of peace. Up to comparatively recent times it was with difficulty that the bee men and the fruit men could see any good in each other, the bee men claiming that the arsenical sprays killed their bees, and the fruit men that the bees injured their grapes and peaches. The old feeling of antagonism is now passing with a better understanding of both bees and fruit and many common interests are helping to cement a friendship sufficiently strong to bridge over some little differences.

Once in every ten or fifteen years we have a trying winter. Last year we passed through such a winter and following came a season of excessive swarming. Now that it is over, the bee-keepers up here are looking forward to a period of normal summers, on the theory that it is needed to maintain the general average.

ENGLISH WALNUT CULTURE IN THE EAST

By E. C. Pomeroy

Lockport, N. Y.

OWNERS of country estates and orchardists throughout the United States are just now devoting more and more attention to the culture of the English or Persian walnut. In fact, horticulturists everywhere are tremendously interested in the propagation of this delicious fruit, both from a commercial and an æsthetic point of view.

For many years the English walnut has been cultivated with more than ordinary success in California, but only very recently has a sufficiently hardy variety been found to withstand the severe winters of the northern and eastern states. The late Norman Pomeroy of Lockport, N. Y., while attending the Centennial Exposition in Philadelphia in 1876, noticed a species of tree totally new to him. On investigation, he found it to be an English walnut tree of surprising beauty. It was the fall of the year and the ground

underneath the tree was covered with nuts. He propagated young trees from this acclimated variety, feeling certain that from these he would ultimately obtain an English walnut of superior hardiness, capable of resisting the rigors of almost any climate.

He planted these young trees about his residence in Niagara County, N. Y., in the spring of 1877 and they grew steadily, making surprising growth each year until now they stand fully 50 feet high, with a spread to their branches of 40 to 45 feet, and yielding nuts of the finest quality and in great abundance. During the 35 years of growth where the temperature has frequently descended far below zero, they have not had a single setback, maturing even earlier than the black walnut or the oak.

The elder Pomeroy's remarkable success has attracted the attention of nut culturists, horticulturists and pro-

gressive farmers in all parts of this country and Europe. Nut specialists from California came East and examined the Pomeroy trees, and were well satisfied that a hardy variety for the colder states had at last been found.

So promising has the culture of the English walnut in the Eastern and Northern states become, that owners of farms and suburban tracts are beginning to set out large orchards, in preparation for the immense demand that is already being shown for this most edible of all nuts.

It is only a few years ago that the cultivation of the English walnuts for the market started in California. Today they are shipped from that state in car and train loads. To show, however, that the supply does not begin to meet the demand in this country, it may be stated that the United States consumes more than 50,000,000 pounds of English walnuts a year, and that about 27,000,000 pounds of these have to be imported every year.

And when it is known that the price is steadily advancing, it will very readily be seen that the possibilities of commercial success are unusually great.

In California the nut industry is rivaling that of the orange, and even now, there are more dollars worth of nuts shipped from the state per year than there are of oranges. This statement is meant to include all varieties of nuts, although the English walnut figures large in the proportion.

As to planting and cultivating, English walnut trees seem to require no particular soil, but should not be set out where it is low and wet. The trees should be planted 40 to 50 feet apart

each way. A cultivated crop, such as corn or potatoes, with small fruit trees for fillers, can be made to yield an income for the brief period, comparatively, before the walnuts begin to bear. The pruning should be done between fall and spring, only such branches as would interfere with cultivation being removed.

In planting on the lawn the ground about the base of the tree should be kept spaded for three feet in circumference, and after the first year some well-rotted manure should be worked into the soil around the tree. No cultivating should be done after the first

of August, as it would encourage further growth, and from then until winter the annual growth of wood is ripening and hardening.

No more beautiful shade tree is known than the English walnut. They make comparatively no litter, have a pure white bark, very closely resembling that of the white birch, and bear a heavy foliage with a rich, glossy leaf.

They are almost

immune from insect pests, a certain alkali sap which they possess serving to drive away the parasites which are so ruinous to the chestnut and nearly all other fruit trees.

A California grower of English walnuts who recently visited an orchard in western New York declared the specimens which he saw there to be the very finest he had ever seen. "You have a better flavored nut and you have proved beyond a doubt that the variety is thrifty and hardy," were his exact words. This same grower said that his 60 acres of young California trees gave him in 1911 a crop which he sold for \$10,000.



ENGLISH WALNUT TREE.

The Cornell Countryman

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JANUARY, 1913

We are pleased to announce the election of Harold M. Stanley of Syracuse, N. Y., and Edwin C. Heinsohn of Mount Vernon, N. Y., as associate editors and Robert W. White of Brockport, N. Y., as assistant business manager to fill vacancies on the Board. We wish to thank most heartily A. S. Montague, '15, A. B. Dann, '15, W. E. Monson, '15, T. G. Stitts, '15, and K. A. Tabscott, '15, for the work which they have done for THE COUNTRYMAN during the past year.

Farmers' Week

Preparations are being made to accommodate a record crowd during the Sixth Annual Farmers' Week which is to be held this year, February 10-15. This annual event has increased in extent and attractiveness until at present we find Farmers' Week eagerly anticipated by farmers, students, and alumni alike.

It has become probably the greatest convention in this state of men and women interested in country life. As usual there will be lectures and demonstrations by members of the faculty, by successful farmers, and by others prominent in the field of agriculture. Then too, the winter meetings of the various organizations held during the week will attract many to Ithaca.

Farmers' Week offers the citizens of the State an excellent opportunity to visit the College of Agriculture and to see what work it is carrying on. Here they will have an opportunity not only to get technical information along agricultural lines, but they will at the same time gain inspiration and enthusiasm from their contact with specialists and successful farmers from all parts of the state.

On Thursday of Farmers' Week, the fourth annual meeting of the Students' Association will be held. It is hoped that as many as possible of the former students of the College of Agriculture will arrange to be present at this meeting since several important matters are to come up for discussion.

As the number of alumni increases, Farmers' Week becomes more and more a week of re-unions. We urge all former students to plan now to spend the week of February 10-15 at Cornell, revisiting familiar places, renewing old friendships and making new acquaintances.

A Parcels Post

On January 1, the new parcels post system was put in operation.

While it is too early to prophesy the effectiveness of the new system, which is the most gigantic transportation proposition ever undertaken by the government, we feel that

It is a great step towards bringing the farmer into closer touch with the consumer. The service will extend over more than 1,435,000 miles of transportation lines, including 233,900 miles of railways, 164,400 miles of star routes, 29,280 miles of steamboat lines, and 1,007,770 miles of rural mail routes. The limit of weight on fourth-class matter is extended from four pounds to eleven pounds, and the postage rate is lowered from sixteen cents a pound to a graduated scale (based on distance) of from five cents to twelve cents for the first pound, and one cent to twelve cents for each additional pound. The country is divided into a series of postal zones in order that those who send packages to nearby points will not have to pay part of the cost of a longer haul.

The parcels post rates are as follows:

	First Pound	Each Additional Pound	Eleven Pounds
Local rural routes and city delivery.....	\$.05	\$.01	\$0.15
50 mile zone .....	.05	.03	0.35
150 mile zone .....	.06	.04	0.46
300 mile zone .....	.07	.05	0.57
600 mile zone .....	.08	.06	0.68
1000 mile zone .....	.09	.07	0.79
1400 mile zone .....	.10	.09	1.00
1800 mile zone .....	.11	.10	1.11
Over 1800 miles .....	.12	.12	1.32

Special stamps have been printed for this service and must be used in all cases. Packages must have the address of the sender written plainly on the outside.

Although new in this country, parcels post is by no means an untried experiment. Every one of the Euro-

pean nations—with the single exception of Spain—has a parcels post system in satisfactory operation. We may therefore feel confident of the success of the American parcels post.

A Horticultural Number

Our first special number of the present college year we have devoted to the field of Horticulture. We have neither hoped nor attempted to thoroughly cover the entire subject but have endeavored to bring together articles which will represent several of the most important branches.

The State of New York stands at the head in floriculture, olericulture, and in the production of fruits adapted to its climate. Fertile soil, favorable climate, and proximity to markets unite to make opportunities along horticultural lines as great in this State as in any State in the Union. Great problems of transportation, marketing and other semi-public questions remain to be solved and rapid development along technical lines in all branches of Horticulture may be expected in the near future. There never were better opportunities for the well-trained horticulturist in the commercial line to produce goods of the highest quality and to market them in the most economical and profitable manner, or in technical work to solve problems of a more or less scientific nature which are ever confronting the practical grower.



CAMPUS NOTES

The second meeting of the 1915 Ag class was very successful and well attended. After a short business meeting, the class was entertained by stunts, given by various members of the class. Then followed a very interesting and helpful talk by Professor C. S. Wilson on "College Habits." Life, he declared, is a "bunch" of good and bad habits combined. As success in life depends largely on the results of our habits, we should as far as possible eliminate all bad and increase our good habits. To illustrate, the Professor cited the example of Benjamin Franklin, who wrote down thirteen good habits which he desired to acquire. But after attempting to live up to all thirteen at one time, he finally had to give this up and take one at a time.

"While at college," he continued, "the student should cultivate three habits. First he should acquire the reading habit. An excellent plan is to set aside an hour every day to read good literature. Part of this time should be devoted to lines in which the student is specially interested and part to some other standard literature. Every Cornellian should read the Autobiography of Andrew D. White, in which the development of Cornell is treated. College is an excellent place to start a library, for the student has so many free and valuable bulletins at his disposal." *Secondly*, he said, "the student should cultivate the acquaintance of the faculty. Dean Bailey reserves Sunday evening for meeting the students and many other professors have evenings at home for this pur-

pose." Lastly, "accuracy of thought ought to be acquired and high scholarship attained, because the hard working students are those who succeed in life after they leave college. History shows that men who take the highest places in life are the best scholars."

* * *

A precedent was established in the College last month on Dec. 13 and 14 when the musical clubs of the college gave two concerts away from town, one in Ovid on Friday night and the other at the Willard State Hospital on Saturday afternoon. The men left on the 6:42 Friday evening and the concert began two hours later. The members were very courteously entertained by the townspeople.

Saturday a pilgrimage was made to the Willard State Hospital. The concert that was given was even more successful than the one of the previous evening. So successful was the trip that the authorities in both places extended a most hearty invitation to come down again next year.

The management has endeavored this year to elevate the standing of the Clubs as a musical organization and put them on a well-established basis. This has been possible through the efforts of the best director we ever had, and through the conscientious work of the members.

The management consists of the following: President, C. W. Barker, '13; vice-president, E. J. Hoffman, '13; manager, L. C. Treman, '14; assistant manager, R. C. Shoemaker, '14; director, A. Horner, Jr., '13; leader of

mandolin club, E. E. Hand, '15; leader of glee club, L. C. Treman, '14.

The following men took the trip: First mandolin, H. E. Greiner, '13, G. L. Cooper, '16, A. G. Smith, '16, R. M. Cooper, Sp.; second mandolin, C. W. Barker, '13; W. A. Conklin, '16, D. M. Allman, '16; violins, R. M. Stanton, '15, W. A. McKiernan, '16, C. A. Bacon, '14; flute, P. W. Wing, '15; guitar, W. H. Upson, '14; piano, J. M. Pratt, '16; second bass, R. C. Shoemaker, '14, P. R. Achilles, '15, R. G. Sierk, '15, N. S. Russell, '16, D. B. Smith, '16; first bass, H. W. Hagemann, '13, E. J. Hoffman, '13, J. D. Holmes, '14, W. H. Lewthwaite, '14, S. E. Stone, Jr., '14; second tenors, B. C. Copley, '13, A. B. Dann, '15, C. H. Cornish, '15, P. W. Wing, '15, L. C. Schucknecht, '16; first tenors, L. C. Treman, '14, B. H. Hendrickson, '15, J. B. Maguire, Jr., '16, G. M. Montgomery, '16, J. L. Neff, '16.

* * *

The Professors and Instructors of the Department of Plant Industry have continued the informal meetings of the Plant Industry conference. This is composed of about 35 members, who meet monthly at the houses of the members. At the December meeting Prof. Gilbert of the Department of Plant Breeding gave an interesting talk on the Chautauqua Schools, showing photos of the place and the work being carried on.

General discussion of the problem of giving city bred students of agriculture sufficient practical work, was earnestly discussed.

* * *

The Department of Forestry has just issued a separate announcement of its work as one of the official publications of the University. This announcement contains more details regarding the five year course than have been published heretofore, and every person who is thinking of taking up professional forestry work at Cornell should get a copy. It can be obtained from Secretary Mann, or from the Secretary of the University, or from the Department of Forestry.

Professor Stone of the Department of Farm Practice, has some interesting data on the recent examinations in Farm Practice. Of the 295 Freshmen who have reported this year to date, 95 were raised on farms, 5 were partly raised on farms, while 195 reported not raised on farms. This shows in a striking degree where the agricultural student of the present day is coming from.

* * *

L. S. Tenny of Hilton, N. Y., a practical fruit grower, who after graduating from the University of Rochester, accepted a position with the United States Department of Agriculture and worked several years on the problem of transportation of fruit, recently gave up his work there to go back to his farm and is now here teaching in the Winter Course.

* * *

Professor C. S. Wilson of the Department of Pomology, was at Rochester on December 12 at the meeting of The Western New York Fruit Growers' Association. During the week of December 16 he attended the meeting of the Lucerne County Fruit Growers' Association in Pennsylvania. On December 31 he attended a meeting of the Society for Horticultural Science at Cleveland, Ohio. He will also attend a meeting of the Virginia State Horticultural Society at Lynchburg, Virginia, on January 8.

* * *

Edwin S. DeLany, formerly business manager of the College of Agriculture, has resigned in order to take charge of the management of the DeLany Amusement Company, and has left Ithaca for Norwich, Conn. The DeLany Amusement Company owns moving picture and vaudeville houses in Norwich, Hartford, Schenectady, New York City and Pittsfield, Mass.

* * *

Professor G. W. Herrick and Professor Donald Reddick, of the College attended a conference of the Oswego Fruit Growers' Association in Oswego last month. Professor Herrick spoke

on "Insect Pests of Fruit," while Professor Reddick gave a speech on "Fungus and Bacterial Diseases."

* * *

The Entomology department had an exhibit of insects that are injurious to fruit trees and fruit. A large number of charts and photographs showing the different stages in the development of these insects were shown.

* * *

Professor W. A. Stocking, head of the Dairy department, accompanied by six members of the department faculty and 40 or more of the short course students, attended the annual convention of the Western New York Dairymen's Association, held at Syracuse. The departments of Farm Management and Dairy Industry prepared exhibits and materials for a booth at the Dairyman's Show. Butter and cheese made by Cornell undergraduates was entered in the scoring tests.

* * *

Professor W. M. Wilson of the department of Meteorology has just returned from a visit to 20 of the cooperative Meteorological stations in the state.

As a result of his visit to Alfred University he recommended that a special Meteorological station be established in connection with the State School of Agriculture at Alfred. If his recommendations are carried out Alfred will have a fully equipped Meteorological station similar to that at Cornell.

He has also recommended a special forecast, frost and cold wave service for the vegetable growers on Long Island. Also a Meteorological station

in connection with the Long Island State School of Agriculture.

* * *

Professor Fippin of the Department of Soils, spoke at an extension school meeting at Perry, Wyoming County, a short time ago.

* * *

Professor Riley of the Department of Farm Mechanics, was in Chicago, December 11-14 investigating the development of harvesting machinery from the old to the new.

Professor Riley, who is one of the Directors of the Syracuse College of Agriculture attended a meeting there December 10.

* * *

The 1912-13 chapter of Heb-sa a senior honorary society of the College of Agriculture consists of the following men: L. C. Armstrong, E. S. Bates, E. A. Brown, J. S. Brown, G. D. Clarke, A. L. Dean, E. H. Dole, C. H. Elliott, A. B. Genung, H. G. Honeywell, Albert Horner, jr., B. P. Jones, O. B. Kent, J. H. Munn, Maurice Rothstein, F. C. Shaw, N. D. Steve, O. M. Smith, C. W. Whitney, J. E. Whinery and W. de S. Wilson.

* * *

Helios, a senior honorary society of the College of Agriculture, is composed of the following members: C. P. Alexander, Clyde Bame, P. B. Barton, J. S. Champion, L. K. Chapman, B. L. Crandall, C. E. Dimon, B. H. Frary, A. C. Fraser, M. B. Goff, R. H. Hewitt, L. W. Kephart, G. W. Lamb, E. G. Lawson, M. D. Leonard, E. G. Misner, F. S. Parker, B. H. Paul, W. C. Stokoe, and H. A. C. Thomas.

Mr. Arthur Bernhard Recknagel, who takes up his work in the College of Agriculture beginning February first as Professor of Forestry, comes to this institution with a thorough training and broad experience which will make his work in the Department of Forestry exceedingly valuable. Mr. Recknagel was born in Brooklyn, N. Y., in 1883, and, after preparing for college in

one of the leading schools in Brooklyn, graduated from Yale with the degree of B.A. in 1904. He finished his course in forestry at the Yale Forest School in 1906 and immediately entered the U. S. Forest Service. From then until February, 1908, he was engaged as a Forest Assistant in New Mexico, Utah and Arizona on timber sale work in the National



ARTHUR BERNHARD RECKNAGEL

Forests. During the year, 1908 he organized and conducted the work of reconnaissance for the Forest Service, the object of which was to determine with a greater degree of accuracy than had heretofore been done the existing resources of the National Forests, and the preparation of type maps and estimates of standing timber, which would form the basis for future working plans.

When a part of the administration of the Forest Service was transferred to

districts in the West, Mr. Recknagel went as Assistant Chief of Silviculture in District 3, with headquarters at Albuquerque, New Mexico. He was promoted to Assistant District Forester in January, 1910, and from that time until October, 1911, was engaged in field work and administrative work in the office of silviculture.

The year from October, 1911, to September, 1912, Mr. Recknagel spent in study and travel in Holland, Germany, France, Switzerland and Austria. During this year abroad Mr. Recknagel accumulated a vast store of knowledge concerning the practical application of scientific methods of forest management and, because of his previous large experience with field conditions in this country, was in a position to concentrate his time on studies which would have a direct bearing on forestry work in this country. The Department of Forestry is, therefore, particularly fortunate in securing a man whose experience and training are so wide and varied.

Mr. Recknagel is now in New Mexico, having charge of silviculture in District 3, and will remain there until he takes up his duties at this college on February 1, 1913.

"The Theory and Practice of Working Plans," a book which is the embodiment of a part of Mr. Recknagel's experience and study, will be issued very shortly by John Wiley and Sons of New York.

GENERAL AGRICULTURAL NEWS

The great Fifth National Apple Show was held at Spokane, Washington, November 11-17, at the Interstate Fair Grounds. There were 20 carload exhibits of fruit and several thousand boxes of less than carload lots in the racks, making more than 2,500,000 individual apples on display outside of plate displays. Among all these apples the judges found only *one* wormy apple. In all the Northwestern states it is illegal to ship wormy apples and so the

growers try to put out what is practically a guaranteed pack.

The discussions in the Fruit Growers Conference centered mainly about the By-Products, Storage and Marketing. The interest shown in the conferences indicate that these phases of the apple industry are coming to be regarded as of more importance than all the rest, although definite information about these is most lacking.

A packing school was also in operation under the supervision of J. M. Carrol of Mosier, Oregon, while Miss Gertude McKay, formerly head of the Department of Home Economics at the Washington State College, lectured on apple cookery.

* * *

Several new laws relating to the taxation of forest land in New York State went into effect recently. These laws give complete exemption from taxation in some cases, and a reduction or limitation of the tax in other cases. In order to get this relief from taxation the land must be used for forestry purposes. It must be planted with forest trees if it is not already well wooded. If it is now covered with brush or with an unsatisfactory stand of timber, it must be under planted; that is, good trees must be planted under the existing growth. If it is already well wooded, it must be maintained as a satisfactory forest.

One of the great objections which many people have raised to giving care to their forest lands is that the taxes take much of the profits. By these new laws the state now guarantees reasonable taxation on forest lands that are managed as true forest properties. The state also furnishes trees from its state nurseries for planting, the trees being sold at the cost of production. It is hoped that the owners of lands which are not well adapted to cultivated farm crops will see their opportunity and will take advantage of this twofold help in making their forest lands more profitable.

* * *

Of all the exhibits for prizes at the Land and Irrigation Exposition in New York, at the 71st Regiment Armory, none aroused such keen competition or such keen interest as the Eastern ap-

ples competing for the \$750 silver cup awarded for the best exhibit of fifteen boxes of apples grown by a single orchardist or company located in New England, New York, New Jersey, Pennsylvania, Delaware, Maryland or Virginia, each exhibit of fifteen standard boxes, consisting of three varieties, five boxes to each variety, a single variety to each box. Professor H. E. Van Deman, formerly United States government pomologist, acted as judge scoring the apples; quality and condition of the fruit counting 65 points, packing counting 30 points, and the package itself 5 points.

As a state exhibit New Jersey excelled by far, but the award was made to T. W. Steck, of Winchester, Va., though the four New Jersey competitors all ran close seconds, the lowest being less than 1 1-3 points behind the winner, with Granville W. Leeds, of New Jersey, who won second, only two-thirds of a point behind in the race.

* * *

In the world's production of coffee, Brazil holds the preëminent place. In 1800 the exports from Brazil amounted to 1,720 pounds; they have steadily increased until in 1909 they were more than 2¼ billion pounds. The area in Brazil suitable for coffee cultivation covers about 1,158,000 square miles, or an area larger than the States of New York, Pennsylvania, Ohio, Indiana, Illinois, Iowa, Kansas, Missouri, Nebraska, Michigan, Wisconsin, Oklahoma, Texas and California; but the area under cultivation is small compared to that which could be cultivated but little over two million acres being in coffee in 1905. About three-fourths of the world's output is grown in Brazil and the State of Pan Paulo alone produces one-half of the world's supply.

PRODUCTION OF APPLES IN BARRELS, 1911, 1912

	1911	Per cent of total	1912	Per cent of total
United States.....	35,765,000	100.0	38,310,000	100.0
New England.....	3,125,000	8.8	3,060,000	8.0
New York.....	5,600,000	15.6	6,900,000	18.0
Pennsylvania.....	3,200,000	8.9	2,100,000	5.7
The Far West (Colorado, Idaho, Utah, Montana, California, Oregon and Washington).....	3,860,000	10.8	4,425,000	11.5
Southern Piedmont, West Virginia, Virginia, Maryland, Kentucky and Tennessee.....	5,400,000	15.1	5,900,000	15.4

FORMER STUDENTS



CHARLES FREDERICK SHAW, B.S.A., '05

'06, B.S.A.—Charles Fredrick Shaw was born on a farm in West Henrietta, New York, May 2d, 1881. He attended the local district school, and later attended the Scottsville High School, graduating in 1897. A summer was spent in a drug store in Rochester, N. Y., and two years in farm work and in 1900 he entered Starkey Seminary, graduating in 1902. He entered the College of Agriculture, Cornell University that fall, with the class of 1906, completing his course in January, 1906. In College he specialized in Soils and Agronomy, and in 1905-1906 was Assistant in Soils.

Entering the Bureau of Soils, Washington, D. C., in February, 1906, as Scientific Assistant, he assisted in soil surveys in Louisiana, Arkansas, and Texas. From January to April, 1907, on leave of absence from the Bureau of Soils, he was Instructor in Agronomy at the Pennsylvania State College, establishing the courses in Soils at that

institution. During the summer of 1907 he had charge of the soil survey of Center County, Pa., and in September he entered the regular employ of Pennsylvania State College as Instructor in Agronomy, being held on the rolls of the Bureau of Soils as Classified Collaborator. In 1909 he became Assistant Professor of Agronomy, having charge of the instruction in Soils and Fertilizers. During the summers he continued in soil survey work, in 1908 and 1909 assisting in the Reconnaissance Survey of Pennsylvania, and during 1910, 1911, and 1912 having charge of that work. The completion of this work, in 1912, puts Pennsylvania in the lead, as the only state, except Rhode Island, which has a completed map showing the soils of the commonwealth.

Mr. Shaw has resigned his position in Pennsylvania, to accept the chair of Soil Technology at the University of California and will take up his work there on January 6th, 1913. In California he will have charge of the instruction in Soils, will carry on a soil survey of that state, and will carry on investigations of the physical properties of soils.

'77, B.S.A.—F. M. Pennock is manager of the Porto Rico Pineapple Company at Rio Piedras, Porto Rico.

'93, B.S.—Walker G. Rappleye of Oswego State Normal teaching-staff was married in June to Marion Fradenburg. His present address is R. No. 2, Oswego, N. Y.

'98, B.S.A.; '05, M.S. in Agr.—J. W. Gilmore who has one more year to serve as president of the College of Hawaii, has accepted the position of Professor of Agronomy at the University of California.

'01, B.S.A.—D. L. Van Dine is carrying on entomological work for the Porto Rico Sugar Growers' Association at Rio Piedras.

'02, B.S.A.—A. F. Brinckerhoff has moved his landscape offices from 103 Park Avenue to 15 East Fortieth Street New York City.

'05, B.S.A.—Mr. Hayes C. Taylor is managing the home farm in Doe Run, Chester County, Pa. He has become one of the leading grangers in that county, where the Grange is unusually strong.

'05, Agr.—Sidney G. Rubinow is at present teaching Physiography, Biology and Agriculture in the Flathead County High School at Kalispell, Montana.

'06, B.S.A.—W. G. Brierley is Instructor and Farmers' Institute Lecturer in the department of Horticulture of the State College, Pullman, Wash.

'06, B.S.A.—C. W. Mann, who is engaged in fruit storage investigation in California for the U. S. Dept. of Agr., spent several days in Ithaca during December. Mr. Mann's headquarters in California are in Pasadena.

'06, Sp.—Mr. Lowell B. Gable is managing the Glen Cable Farms at Wyebrooke, Chester County, Pa. He has a fine herd of registered Guernsey cattle, and by his excellent management has made the farms show excellent results. Mr. Gable is prominent in Masonic and Grange circles, and has held important political offices in his district.

'07, B.S.A.—The career of Miss Minnie Jenkins since graduating from this university makes very interesting reading, illustrative of what some of our graduates are accomplishing in the scientific field. Miss Jenkins received her Master's degree here in 1909 and went to Washington in the capacity of Assistant Bacteriologist with the Bureau of Chemistry of the United States Department of Agriculture. Her work here dealt with the chemical examination of foods such as milk, water, frozen and dried eggs, in search of Pure Food Law violations. In a number of cases Miss Jenkins had to act as an analyst witness in court proceedings. In June she was transferred to the Food Research Laboratory of the same Department at Philadelphia where she now is. Most of her work at present has to do with the examination of frozen and dried eggs.

'07, B.S.A.—John B. Sheperd recently visited the College for a day. He has been raising truck crops at San Marcos, Texas.

'07, W. A.—Fred E. Tyler is managing a 600 acre farm at Boardville, N. J., for Mr. Edward Hewitt of New York.

'08, M.S.—Mr. E. L. Worthen who has had charge of Fertilizer and Soil investigation in North Carolina, has accepted the position of Assistant Professor of Agronomy at Pennsylvania State College, and will enter his new duties in January, 1913. He will have charge of Soils and Fertilizer courses.

'08, B.S.A.—Clarence Lounsbury of the U. S. Bureau of Soils is now working on a soil survey of Pope County, Arkansas.

'08, Sp.—Dean M. Barber, who has been employed in Porto Rico as manager of a grape fruit farm has returned to Skaneateles, N. Y., to take up work there.

'09, M.S.A.—Robert L. Latzer who is now president of the Highland Milk Condensing Company, Elkland, Pa., visited the College on Dec. 14th and 15th.

'10, B.S.A.—George C. Beeker is instructor and acting entomologist at the experimental station of the University of Arkansas at Fayetteville, Arkansas.

'10, B.S.A.—Ray E. Duel was married to Miss Diana Constable of Norfolk, Mass., on December 24. Mr. and Mrs. Duel will be at home in May at The Warelands, Highland Lake Station, Norfolk, Massachusetts.

'11, B.S.A.—David E. Fink is with the United States Bureau of Entomology. He is stationed at Norfolk, Va., with the Virginia Truck Experiment Station.

'11, B.S.A.—W. E. Garnett has the position of Director of Agriculture at the New London Academy, of Forest Depot, Virginia.

'12, B.S.—E. W. Peterson who has been doing work in West Virginia, visited the college just before Christmas.

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Mr. Jackson has been a large-scale poultry raiser. Made a specialty of poultry and fruit combined. For six years conducted the "National Stockman and Farmer" Poultry Farm. Was Associate Editor of that publication. In 1909 became instructor in Poultry Husbandry at Pennsylvania State College and Agricultural Experiment Station. Author of several Poultry books. Farmer's Institute Lecturer. Resigned position at Pennsylvania State College to enter Service Department of Cyphers Incubator Company, June, 1912.

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Mr. Jeffery has raised Standard Bred Poultry since boyhood. Was Director of Western Ontario Poultry Association 1902-3. Served as Vice-Pres. Canadian Barred Plymouth Rock Club. Was placed in charge of North Carolina Agricultural Experiment Station in 1906. Four years later was advanced to instructor in Poultry Husbandry North Carolina College of Agriculture and Mechanic Arts. Resigned this position to join the Cyphers Company forces. Farmers' Institute Lecturer, 1904-11.



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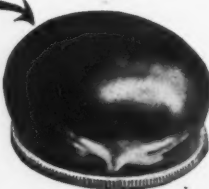
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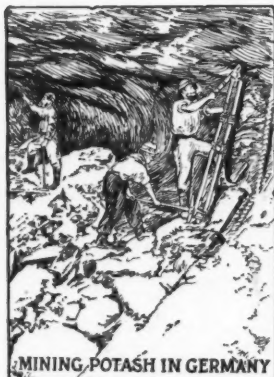
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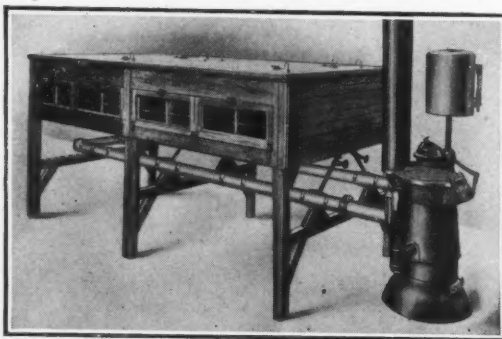
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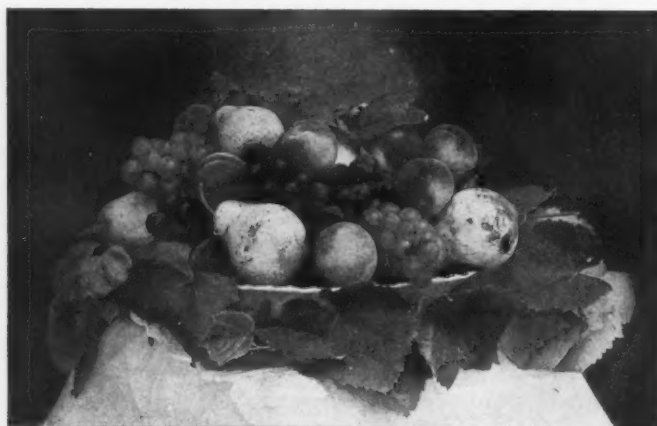


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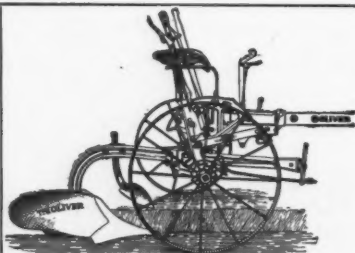
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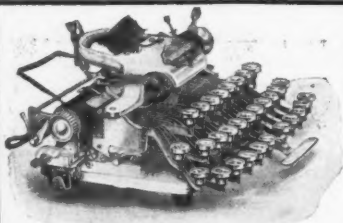
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